



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,544	10/30/2003	Bernardo A. Huberman	200313330-1	3054
22879	7590	05/01/2008	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				GYORFI, THOMAS A
ART UNIT		PAPER NUMBER		
2135				
			NOTIFICATION DATE	DELIVERY MODE
			05/01/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM  
mkraft@hp.com  
ipa.mail@hp.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/699,544	HUBERMAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thomas Gyorfi	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 February 2008.
- 2a) This action is **FINAL**.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,6-8,11-13 and 15-22 is/are rejected.
- 7) Claim(s) 3-5,9,10 and 14 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

1. Claims 1-22 remain for examination.

### ***Response to Arguments***

2. Applicant's arguments filed 2/0/08 have been fully considered but they are not persuasive.  
Regarding the limitation "sending a respective one of the quantum entangled particles to each of the at least two nodes", it is observed that the specification provides no clear guidance as to what exactly constitutes a "node"; accordingly, the individual components of elements 108 and 120 of Figure 1 could be construed as "nodes" under the broadest reasonable interpretation of the term. Similarly, the remaining limitations are written so generically that any response(s) to detecting which state the entangled photons, no matter how trivial those actions might be, nevertheless correspond to "selectable actions" as per the claim language; Jansen discloses taking different actions depending on whether a 0 or a 1 is measured, as per paragraph 0100.

### ***Claim Rejections - 35 USC § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1, 2, 6-8, 11-13, and 15-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Jansen (U.S Patent Application Publication 2004/0208638).

Regarding claims 1, 15, 19, 21, and 22:

Jansen discloses a method and system for coordinating predefined actions for at least two nodes, comprising: generating at least two quantum-entangled particles (paragraphs 0036 and 0037); defining at least two selectable actions being identified by a first quantum state and a second one of the at least two quantum-entangled particles being identified by a second quantum state that is

different from the first quantum state (paragraphs 0047, 0066, and 0100); sending a respective one of the quantum entangled particles to each of the at least two nodes (paragraph 0054); detecting a state of a first one of the quantum entangled particles at a first one of the nodes, whereby a state of each other of the quantum entangled particles is fixed to the detected state of the first one of the quantum entangled particles (paragraphs 0096-0099); after detecting the state of the first one of the quantum entangled particles, detecting the fixed state of a second one of the quantum entangled particles at a second one of the nodes (*Ibid*); and for at least one of the first and second nodes, selecting and performing one of the at least two predefined actions, in part, as a function of the detected state of the quantum entangled particles and the quantum state identification of the predefined actions (paragraph 0100).

Regarding claim 2:

Jansen further discloses comparing the detected state to the quantum state identifications, and in response to finding a matching state, performing the predefined actions identified by the matching state (paragraphs 0100-0102).

Regarding claim 6:

Jansen further discloses generating quantum entangled photons and sending a respective one of the photon pairs to each of the at least two nodes (paragraphs 0054 and 0096-0098).

Regarding claim 7:

Jansen further discloses generating pairs of photons having consistent polarization and generating a result that is consistent for each node as a function of the polarization (paragraph 0035).

Regarding claim 8:

Jansen further discloses identifying an expected lifetime of the entangled state of the quantum-entangled particles (paragraph 0073); and wherein detecting a state of a first one of the quantum-entangled particles includes detecting the states prior to the expected lifetime expiring (Ibid).

Regarding claim 11:

Jansen further discloses wherein defining at least two selectable actions includes defining two selectable actions at a first node, further comprising sending the two selectable actions to a second node and using the detected state of the quantum-entangled particles and the two selectable actions at the second node to audit the selection and performance of one of the two selectable actions at the first node (paragraphs 0100-0102).

Regarding claim 12:

Jansen further discloses wherein selecting and performing one of the at least two predefined actions includes independently selecting and performing one of the at least two predefined actions (paragraph 0100).

Regarding claim 13:

Jansen further discloses wherein independently selecting and performing one of the at least two predefined actions includes selecting and performing one of the at least two predefined actions at a first one of the nodes without communicating with other ones of the nodes after sending the respective one of the quantum-entangled particles to each of the at least two nodes (Ibid, and paragraph 0070).

Regarding claim 16:

Jansen further discloses wherein generating an output as a function the detected states of the quantum-entangled particles from each set of quantum-entangled particles includes comparing the detected states of at least two quantum-entangled particles at each node and performing a first function in response to the detected states that match and performing a second function in response to the detected states that do not match (reporting a bit vs. reporting an error: paragraph 0100).

Regarding claim 17:

Jansen further discloses wherein generating an output as a function the detected states of the quantum-entangled particles from each set of quantum-entangled particles includes generating at least two inputs as a function of the detected states and processing the inputs to generate the output (paragraphs 0065-0067).

Regarding claim 18:

Jansen further discloses generating at least two bits for the encoding function and processing the inputs with the encoding function to generate a coding output (paragraph 0067).

Regarding claim 20:

Jansen further discloses processing at each of the first and second nodes the detected state to generate an output indicative of the coordinated time and viewable by a user (paragraph 0070).

#### ***Allowable Subject Matter***

5. Claims 3-5, 9, 10, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Gyorfi whose telephone number is (571)272-3849. The examiner can normally be reached on 8:30am - 5:00pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on (571) 272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TAG  
4/21/08  
/KIMYEN VU/  
Supervisory Patent Examiner, Art Unit 2135